

IN THE CLAIMS:

Please amend the claims as shown below in the claims listing.

1. (Currently amended) An apparatus comprising:

a plurality of upstream buffers each configured to store a plurality of upstream packets, wherein each of said plurality of upstream packets contains an associated identifier indicative of a source of each of said plurality of upstream packets; and

a router coupled to each of said plurality of upstream buffers and configured to receive said plurality of packets, and to route each of said plurality of packets to a given one of said upstream buffers, depending upon the associated identifier, wherein a given buffer of said plurality of upstream buffers stores only packets having a same source;

a plurality of upstream reorder logic circuits, wherein each one of said plurality of upstream reorder logic circuits is coupled to a corresponding one of said plurality of upstream buffers and is configured to determine [an] a correct order of transmitting each of said packets stored in said corresponding one of said plurality of upstream buffers based on a set of predetermined criteria, wherein each of said plurality of upstream reorder logic circuits is further configured to reorder given ones of said packets stored in said corresponding one of said plurality of upstream buffers in response to determining that said order of transmitting is not correct;

a transmitter unit coupled to said plurality of upstream reorder logic circuits and configured to transmit one packet of said plurality of upstream packets

stored within said plurality of upstream buffers dependent upon an order of receipt within said plurality of upstream buffers.

2. (Cancelled)

3. (Previously presented) The apparatus as recited in claim 1 further comprises:

a downstream buffer configured to store a plurality of downstream packets, wherein each of said plurality of downstream packets contains an identifier with a corresponding value;

a downstream reorder logic circuit coupled to said downstream buffer and configured to determine an order of transmitting each of said plurality of downstream packets based on said set of predetermined criteria.

4. (Original) The apparatus as recited in claim 3, wherein said predetermined criteria include:

arrival times of each of said plurality of upstream packets and each of said plurality of downstream packets;

transaction types of each of said plurality of upstream packets and each of said plurality of downstream packets.

5. (Original) The apparatus as recited in claim 1 further comprising a local node bridge circuit configured to translate a peripheral bus transaction into an additional upstream packet and to forward said additional upstream packet upstream.

6. (Original) The apparatus as recited in claim 5 further comprising a dedicated node stream buffer coupled to said local node bridge circuit and configured to store said additional upstream packet.

7. (Original) The apparatus as recited in claim 1, wherein said router is further configured to route upstream packets having associated identifiers with corresponding values to the same upstream buffer of said plurality of upstream buffers.
8. (Original) The apparatus as recited in claim 1, wherein said router is further configured to route upstream packets having associated identifiers with different values to different upstream buffers of said plurality of upstream buffers.
9. (Currently amended) A system comprising:
 - a processor;
 - a bus bridge coupled to said processor; and
 - a packet bus device coupled to said bus bridge by a packet bus, wherein said packet bus device includes an apparatus comprising:
 - a plurality of upstream buffers each configured to store a plurality of upstream packets, wherein each of said plurality of upstream packets contains an associated identifier indicative of a source of each of said plurality of upstream packets; and
 - a router coupled to each of said plurality of upstream buffers and configured to receive said plurality of packets, and to route each of said plurality of packets to a given one of said upstream buffers, depending upon the associated identifier, wherein a given buffer of said plurality of upstream buffers stores only packets having a same source;

a plurality of upstream reorder logic circuits, wherein each one of said plurality of upstream reorder logic circuits is coupled to a corresponding one of said plurality of upstream buffers and is configured to determine [an] a correct order of transmitting each of said packets stored in said corresponding one of said plurality of upstream buffers based on a set of predetermined criteria, wherein each of said plurality of upstream reorder logic circuits is further configured to reorder given ones of said packets stored in said corresponding one of said plurality of upstream buffers in response to determining that said order of transmitting is not correct;

a transmitter unit coupled to said plurality of upstream reorder logic circuits and configured to transmit one packet of said plurality of upstream packets stored within said plurality of upstream buffers dependent upon an order of receipt within said plurality of upstream buffers.

10. (Cancelled)

11. (Previously presented) The system as recited in claim 9, wherein said apparatus further comprising:

a downstream buffer configured to store a plurality of downstream packets, wherein each of said plurality of downstream packets contains an identifier with a corresponding value;

a downstream reorder logic circuit coupled to said downstream buffer and configured to determine an order of transmitting each of said plurality of downstream packets based on said set of predetermined criteria.

12. (Original) The system as recited in claim 11, wherein said predetermined criteria include:

arrival times of each of said plurality of upstream packets and each of said plurality of downstream packets;

transaction types of each of said plurality of upstream packets and each of said plurality of downstream packets.

13. (Original) The system as recited in claim 9 further comprising a local node bridge circuit configured to translate a peripheral bus transaction into an additional upstream packet and to forward said additional upstream packet upstream.

14. (Original) The system as recited in claim 13 further comprising a dedicated node stream buffer coupled to said local node bridge circuit and configured to store said additional upstream packet.

15. (Original) The system as recited in claim 9, wherein said router is further configured to route upstream packets having associated identifiers with corresponding values to the same upstream buffer of said plurality of upstream buffers.

16. (Original) The system as recited in claim 9, wherein said router is further configured to route upstream packets having associated identifiers with different values to different upstream buffers of said plurality of upstream buffers.

17. (Currently amended) A method comprising:

receiving a plurality of upstream packets, wherein each one of said plurality of upstream packets contains an associated identifier indicative of a source of each of said plurality of upstream packets;

examining each of said associated identifiers;

routing each packet of said plurality of packets to a given upstream buffer of a plurality of upstream buffers, depending upon the associated identifier;

storing only packets having a same associated identifier within a given buffer of said plurality of upstream buffers;

determining [an] a correct order of transmitting each of said packets stored in each of said plurality of upstream buffers based on a set of predetermined criteria;

reordering given ones of said packets stored in said corresponding one of said plurality of upstream buffers in response to determining that said order of transmitting is not correct; and

transmitting one packet of said plurality of upstream packets stored within said plurality of upstream buffers dependent upon an order of receipt within said plurality of upstream buffers.

18. (Cancelled)

19. (Previously presented) The method as recited in claim 17 further comprising:

storing a plurality of downstream packets in a downstream buffer, wherein each of said plurality of downstream packets contains an identifier with a corresponding value;

determining an order of transmitting each of said plurality of downstream packets based on said set of predetermined criteria.

20. (Original) The method as recited in claim 19, wherein said predetermined criteria include:

arrival times of each of said plurality of upstream packets and each of said plurality of downstream packets;

transaction types of each of said plurality of upstream packets and each of said plurality of downstream packets.

21. (Original) The method as recited in claim 17 further comprising translating a peripheral bus transaction into an additional upstream packet and forwarding said additional upstream packet upstream.

22. (Original) The method as recited in claim 21 further comprising storing said additional upstream packet in a dedicated node stream buffer.

23. (Original) The method as recited in claim 17 further comprising routing upstream packets having associated identifiers with corresponding values to the same upstream buffer of said plurality of upstream buffers.

24. (Original) The method as recited in claim 17 further comprising routing upstream packets having associated identifiers with different values to different upstream buffers of said plurality of upstream buffers.